ANALYTICAL RESULTS
OF SURFACE WATER SAMPLES
COLLECTED FROM RACCOON CREEK
February 3, 1999 Sampling Event

Prepared for

LYONDELL CHEMICAL COMPANY/BEAZER EAST INC.

Prepared by:

Applied Hydrology Associates, Inc.
Pittsburgh, PA
Denver, Colorado

February 23, 1999

Applied
Hydrology
Associates, Inc.

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Section **Page**

1.0 INTRODUCTION

This report presents the results of surface water samples collected from Raccoon Creek at the Lyondell Chemical Company (LCC) / Beazer East Inc. (BEI) Monaca, PA site during the February 3, 1999 quarterly monitoring event. The samples were collected in compliance with Appendix D of the 1997 Consent Order and Agreement (1997 CO&A) between ARCO Chemical Company[1], BEI and the Pennsylvania Department of Environmental Protection (PADEP) dated October 20, 1997.

2.0 SAMPLING

Surface water samples were collected at Transect E as defined in the 1997 CO&A. The locations of Transect E is shown in Figure 1. In addition, water elevations were measured in nearby monitoring wells and the results are presented in Appendix A.

A total of eight surface water samples, including a duplicate were collected from Raccoon Creek on February 3, 1999[2]. These samples were collected at the same three locations along Transect E as in previous sampling events. The locations are shown in Figure 2 and are at the center of the stream, and approximately 30 feet from the east and west banks. At the center location, samples were collected at three depths; 6 inches below the surface, 2 inches above the bottom, and midway between the surface and bottom. Samples from the east and west sides of the transect were collected at two depths; 2 inches above the bottom, and midway between the surface and bottom.

During sampling a boat was stationed at Transect E using a rope secured to the east and west shores of Raccoon Creek. The samples were collected by using a peristaltic pump to pump water from the desired depth into three 40-ml vials preserved with hydrochloric acid. Samples were collected from the required depths utilizing tubing secured to a vertical steel rod lowered from the boat until it rested on the bottom of the creek. The rod did not penetrate the sediments on the creek bottom because a 1-foot diameter disc constructed of steel mesh is fastened perpendicular to the bottom of the rod.

Two tubes were used. The bottom of the "deep sample tube" was secured to the probe 2 inches from the bottom of the probe. The bottom of the "mid-depth sample tube" is adjustable and was secured to the probe mid-depth at each location. Care was taken not to disturb the sediments at the sampling location and the pumped water was closely monitored to ensure sediment was not included in the sample. One gallon of water was pumped through the tubing before each sample is obtained in order to purge the tubing.

[1] ARCO Chemical Company is now Lyondell Chemical Company
[2] A field blank was also obtained after pumping one gallon of distilled water through the tubing used for sampling.

The samples were uniquely numbered as follows to identify the location, depth and date of sampling:

RC-EC-00-0299

Where:

RC	indicates Raccoon Creek
EC	indicates Transect E and location (C = center, L = left bank, R = right bank [facing downstream])
00	indicates sample depth in feet and tenths of a foot (0.0 feet)
0299	indicates the month and year collected (February 1999)

Samples were logged onto a chain of custody form (included in of the data validation report in Appendix B) and stored on ice until receipt by Reliance Laboratories Inc. in Edison, NJ. Reliance analyzed the samples using USEPA Method 524.2 for BTEXS.

3.0 RESULTS

The analytical results are presented in Table 1. Benzene was detected in six of the eight samples and concentrations in samples where benzene was detected ranged from 0.37 µg/L in Sample RC-EL-18-0299 to 0.69 µg/L in sample RC-EC-64-0299. Sampling locations and depths are shown on Figure 2, along with the concentration of benzene at each location. Water levels in wells near Raccoon Creek are presented in Appendix A.

Table 1
Summary of Analytical Results for Samples Collected from Raccoon Creek

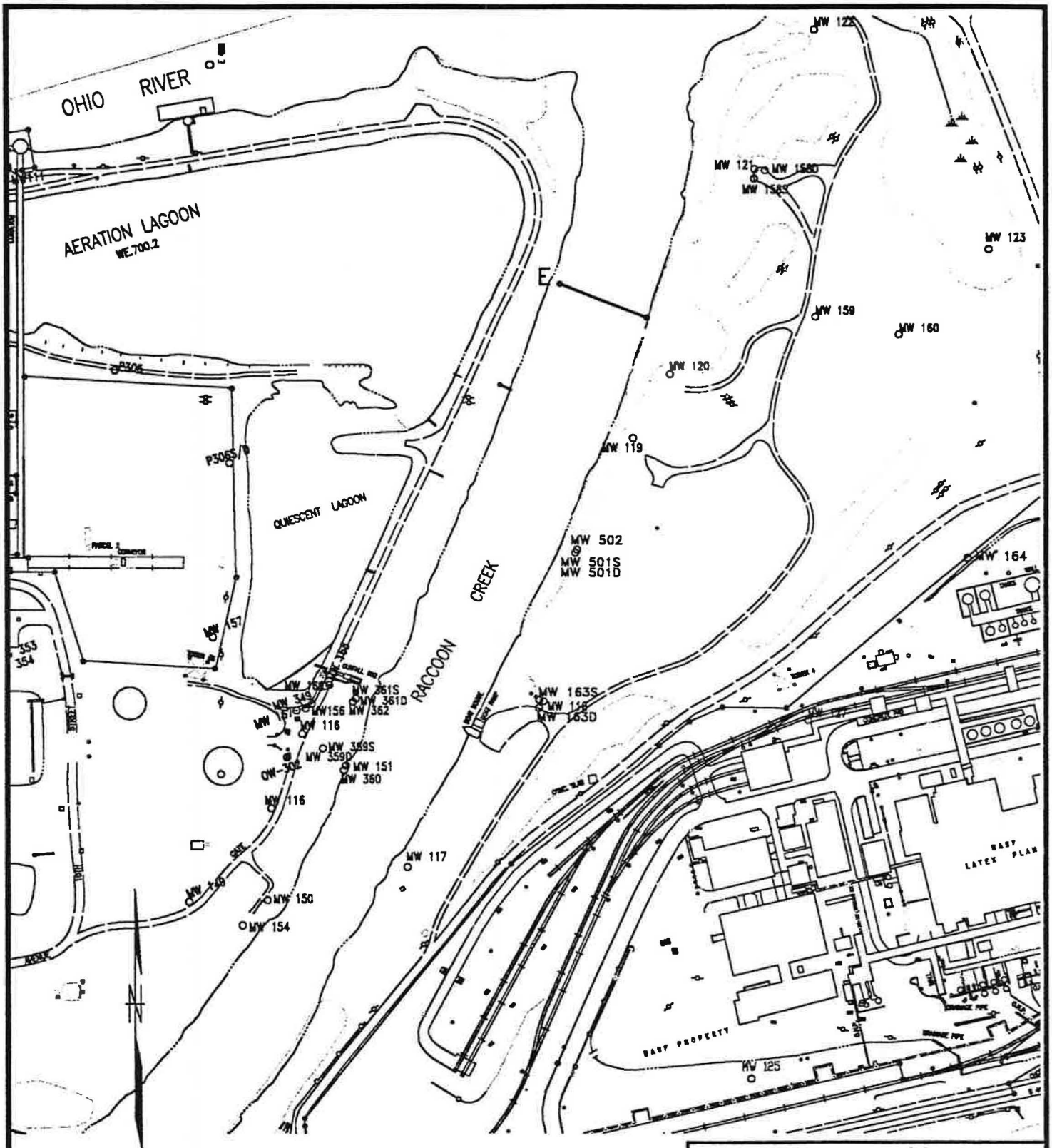
Sample Name	Benzene	Toluene	Ethylbenzene	Xylene	Styrene
RC-EL-18-0299	0.37	0.78	0.27	1.17	< 0.58
RC-EL-36-0299	0.49	0.82	0.32	1.37	< 0.58
RC-EC-00-0299	0.58	< 0.6	< 0.22	< 0.22	< 0.58
RC-EC-00-0299A	0.64	< 0.6	< 0.22	0.61	< 0.58
RC-EC-34-0299	0.64	0.61	< 0.22	0.75	< 0.58
RC-EC-64-0299	0.69	< 0.6	< 0.22	0.55	< 0.58
RC-ER-12-0299	< 0.13	< 0.6	< 0.22	< 0.22	< 0.58
RC-ER-25-0299	< 0.13	< 0.6	< 0.22	< 0.22	< 0.58

The analytical data were validated upon receipt and found to be acceptable. A Data Validation Report which includes the Certificate of Analysis is provided as Appendix B. Table 2 presents the historical concentration of benzene in Raccoon Creek at Transect E during all monitoring events to date.

Table 2
Historic Benzene Concentrations at Transect E
(ug/L)

Sampling Location	Sampling Depth	7/23/97	10/28/97	2/25/98	5/21/98	7/29/98	10/27/98	2/3/99
30 Feet off West Bank	Mid-depth	0.28	<0.13	<0.13	0.70	<0.13	1.57(1)	0.37
30 Feet off West Bank	Deep	0.81	<0.13	<0.13	0.70	<0.13	0.61(1)	0.49
Center of Creek	Shallow	0.24	<0.13	0.38	0.70	<0.13	<0.13	0.61(1)
Center of Creek	Mid-Depth	0.18	<0.13	0.49	0.64	<0.13	0.2	0.64
Center of Creek	Deep	0.46	<0.13	0.30	0.60	<0.13	<0.13	0.69
30 Feet off East Bank	Mid-depth	0.16	<0.13	<0.13	<0.13	0.13	0.52	< 0.13
30 Feet off East Bank	Deep	<0.13	<0.13	0.14	0.22	0.22	<0.13	< 0.13

(1) Results shown are the average of the blind duplicate samples.

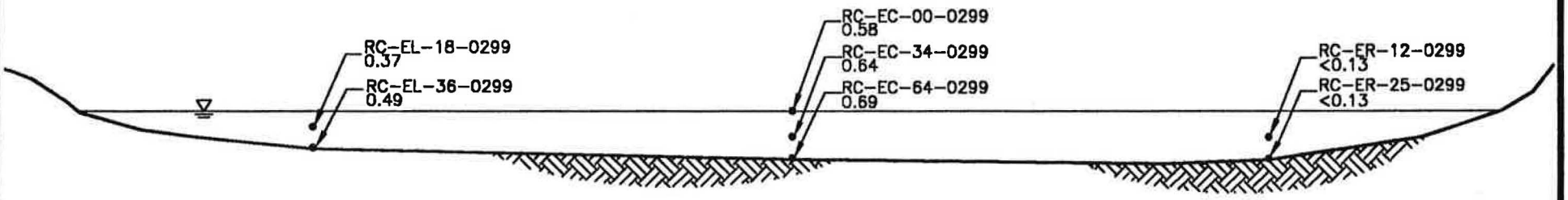


Applied Hydrology Associates, Inc.

ARCO CHEMICAL COMPANY
BEAVER VALLEY PROPERTY
RACCOON CREEK QUARTERLY MONITORING

FIGURE 1 TRANSECT AND MONITORING WELL LOCATIONS

DESIGN: SM	DATE: 8/27/98	FILE REFERENCE: TRANSECT.DWG
DRAWN: MJZ	SCALE:	
CHECKED:	APPROVED:	PROJECT NO.: 36-5



CREEK SECTION
LOOKING DOWNSTREAM

LEGEND

- SURFACE WATER SAMPLE LOCATION

ALL CONCENTRATIONS IN ug/L

20' 0 20'
SCALE IN FEET

Applied Hydrology Associates, Inc.

LYONDELL CHEMICAL COMPANY
BEAVER VALLEY PROPERTY
RACCOON CREEK QUARTERLY MONITORING

FIGURE 2

SURFACE WATER BENZENE CONCENTRATIONS AT TRANSECT 'E'

FEBRUARY 3, 1999

SM	8/27/98	FILE REFERENCE	
MJZ	SCALE: NOT TO SCALE	BENZENE.dwg	
		PROJECT NO. 38-5	PARK NO.

Appendix A

Groundwater Elevations, East and West Sides of Raccoon Creek

GROUNDWATER LEVELS ON THE EAST AND WEST SIDES OF RACCOON CREEK
February 3, 1999

Well Number	Top of Casing (TOC) (ft. amsl)	Depth to SPL from TOC (2) (ft. amsl)	Depth to Water from TOC (2) (ft. amsl)	Calculated Water Level Elevation (1) (ft. amsl)	Calculated SPL Thickness (3) (ft. amsl)	Comments
Monitoring Wells Screened in Silty Clay Unit						
OTH AREA						
MW - 360	685.84	ND	2.03	683.81	N/A	
MW - 170	706.70	ND	22.02	684.68	N/A	
MW - 362	689.43	ND	5.59	683.84	N/A	
RACCOON CREEK AREA						
MW- 118	690.39	ND	6.88	683.51	N/A	
MW - 502	701.86	ND	18.36	683.50	N/A	
MW - 119	705.59	ND	22.08	683.51	N/A	
MW - 120	709.42	ND	25.85	683.57	N/A	
MW - 121	713.90	ND	30.33	683.57	N/A	
MW - 152	696.35	ND	12.82	683.53	N/A	
Monitoring Wells Screened in Upper Sand and Gravel Unit						
OTH AREA						
MW - 344	709.42	ND	25.41	684.01	N/A	
MW - 359S	692.93	ND	9.24	683.69	N/A	
MW - 361S	689.40	ND	5.80	683.60	N/A	
MW - 169	707.93	ND	24.22	683.71	N/A	
MW - 167	711.06	ND	27.35	683.71	N/A	Top of casing changed from 707.36 to 711.06 on 11/98 to accommodate respiration monitoring well head. Monitoring well stick up is 3.70 above orig. TOC
RACCOON CREEK AREA						
MW - 163S	690.87	ND	7.32	683.55	N/A	
MW - 501S	701.30	ND	18.05	683.25	N/A	
MW - 162S	706.05	ND	22.54	683.51	N/A	
MW - 159	708.99	ND	25.43	683.56	N/A	
MW - 160	701.00	ND	17.48	683.52	N/A	
MW - 158S	713.60	ND	30.04	683.56	N/A	
MW - 122	692.78	ND	9.23	683.55	N/A	
Note: See figure 1						
(1) Calculated values, based on Elevation of TOC minus Depth to Water from TOC.						
(2) Measured from top of casing using the MMA Interface Probe. ND means no SPL was detected.						
(3) Calculated values, based on Depth to Water from TOC minus Depth to SPL from TOC. N/A means not applicable, no SPL was detected.						

GROUNDWATER LEVELS ON THE EAST AND WEST SIDES OF RACCOON CREEK
February 3, 1999

Well Number	Top of Casing (TOC) (ft. amsl)	Depth to SPL from TOC (2) (ft. amsl)	Depth to Water from TOC (2) (ft. amsl)	Calculated Water Level Elevation (1) (ft. amsl)	Calculated SPL Thickness (3) (ft. amsl)	Comments
Monitoring Wells Screened in Lower Sand and Gravel Unit						
OTH AREA						
MW 345	708.91	ND	25.37	683.54	N/A	
MW 361D	689.35	ND	5.75	683.60	N/A	
MW 359D	692.80	ND	9.23	683.57	N/A	
RACCOON CREEK AREA						
MW 163D	689.62	ND	6.03	683.59	N/A	
MW 501D	701.44	ND	18.00	683.44	N/A	
MW 166D	703.95	ND	20.51	683.44	N/A	
MW 158D	712.04	ND	48.70	663.34	N/A	

Water Levels in Raccoon Creek and Ohio River				
RACCOON CREEK AREA STAFF GAUGE				
Time of Observation	**Staff Gauge Elevation (a) (ft. amsl)**	**Staff Gauge Reading**	**Calculated Water Level Elevation (ft. amsl)**	**Comments**
8:13	685.00	1.31	683.31	
9:16	685.00	1.40	683.40	
OHIO RIVER. STAFF GAUGE				
9:04	685.96	3.40	683.36	
10:00	685.96	3.50	683.46	
Note: See figure 1				

(1) Calculated values, based on Elevation of TOC minus Depth to Water from TOC.

(2) Measured from top of casing using the MMA Interface Probe. ND means no SPL was detected.

(3) Calculated values, based on Depth to Water from TOC minus Depth to SPL from TOC. N/A means not applicable, no SPL was detected.

(4) Elevation 685.00 is equivalent to 3.00 mark on staff gauge at Raccoon Creek

(5) Elevation 685.96 is equivalent to 6.00 mark on staff gauge at Ohio River

Appendix B

Data Validation Report

Applied Hydrology Associates, Inc.

1200 South Parker Road, Suite 100 Denver, CO 80231 Tel: (303) 873-0164 Fax: (303) 873-6110

M E M O R A N D U M

TO: **Files**
FROM: **Skip Meier, Applied Hydrology Associates**
DATE: **February 22, 1999**
SUBJECT: **Data Validation Results, Lyondell Chemical Company Beaver Valley Property**

Data validation was performed on the volatile organic analytical data from nine surface water samples obtained from Raccoon Creek on February 3, 1999. The validation was performed in accordance with the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Reliance Laboratories Inc. performed the analysis using EPA Method 524.2. The samples reviewed included:

Field Sample ID	Lab Sample ID
RC-EL-18-0299	R6171.5
RC-EL-36-0299	R6171.4
RC-EC-00-0299	R6171.6
RC-EC-00-0299A	R6171.7
RC-EC-34-0299	R6171.8
RC-EC-64-0299	R6171.3
RC-ER-12-0299	R6171.1
RC-ER-25-0299	R6171.2
Field Blank	R6171.9

Items reviewed and actions taken were as follows:

√ **Method:**
The nine samples were analyzed for BTEXS by method USEPA 524.2 on February 4, 1999.

√ **Holding Time:**
All Samples were analyzed within the 14-day holding time.

√ **Blanks:**
No target compounds were detected in the associated method blank.

√ **System Monitoring Compounds:**
The "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" indicate that "Recoveries for system monitoring compounds in volatile samples and blanks must be within the limits specified in the Method." However, Method 524.2 does not specify a required recovery. Nevertheless, 4-bromofluorobenzene and 1,2-dichlorobenzene-d4 surrogate recoveries were within 95-101 percent and this is acceptable.

√ **Internal Standards:**
All fluorobenzene internal standards were within the established criteria for area internal standard and retention time.

√ **GC/MS Instrument Performance Check:**
All bromofluorobenzene (BFB) tunes met the ion abundance criteria. Analysis of the instrument performance check solution was performed at the beginning of each 12-hr period during which the samples were analyzed.

√ **Initial Calibrations:**
The initial calibration performed on February 4, 1999 for Instrument HP5971A met the 30 percent relative standard deviation (RSD) and 0.05 minimum relative response factor criteria for all compounds.

√ **Continuing Calibrations:**
Continuing calibration was run and compared to the correct initial calibration. All continuing calibrations met the 25 percent difference and minimum relative response factor criteria for all compounds.

√ **Matrix Spike/Duplicate:**
The matrix spike/duplicate results for recovery and RPD were within the Quality Control limits.

√ **Target Compound Indentification/Quantitation:**
No problems were identified with compound identification or quantities.

√ **Field Duplicate:**
A field duplicate was collected during this sampling event. The duplicate sample was denoted by an "A" at the end of the sample name. The pair is RC-EC-00-0299 and duplicate RC-EC-00-0299A. Table 1 below summarizes the RPD for the sample/duplicate pair.

Table 1: Relative Percent Difference (RPD)

Sample Name	Benzene (ppb)	RPD (%)	Toluene (ppb)	RPD (%)	Ethyl-Benzene (ppb)	RPD (%)	Xylene (ppb)	RPD (%)	Styrene (ppb)	RPD (%)
RC-EC-00-0299	0.58	8.3	ND	NA	ND	NA	ND	NA	ND	NA
RC-EC-00-0299A	0.64		ND	NA	ND	NA	0.61	NA	ND	NA

ND = Non Detect
NA = Not Applicable

√ **Summary:**
The overall quality of the data was good. There was good agreement between duplicate sample pair RC-EC-00-0299 and RC-EC-00-0299A (See Table 1). The concentration of benzene in the field blank was 0.63 ug/L, but this was attributed to lab error since one gallon of distilled water was pumped through the sampling tubing before taking the field blank. No trip blank was included with the samples sent to the lab. This oversight will be remedied in subsequent sampling events.

RELIANCE
LABORATORIES, INC.

175 MAY STREET, EDISON, NJ 08837 PH (732) 738-5454 FAX (732) 738-5841
EMAIL: 74201.3501@COMPUSERVE.COM

ANALYTICAL REPORT

For
Arco Chemical Co.
Pittsburgh, PA 15219

Project: Arco / Monaca

RELIANCE
LABORATORIES, INC.

175 MAY STREET, EDISON, NJ 08837 PH (732) 738-5454 FAX (732) 738-5841
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ANALYTICAL DATA REPORT

for

Arco Chemical Co.
Pittsburgh, PA 15219
Project: Arco / Monaca

Date Received: 2/4/99

Sample ID	Lab ID #
RC-ER-12-0299	R-6171.1
RC-ER-25-0299	R-6171.2
RC-EC-64-0299	R-6171.3
RC-EL-36-0299	R-6171.4
RC-EL-18-0299	R-6171.5
RC-EC-00-0299	R-6171.6
RC-EC-00-0299A	R-6171.7
RC-EC-34-0299	R-6171.8
Field Blank	R-6171.9

These samples have been analyzed by EPA method 524.2 for a selected compound list. The results are not designed for use for drinking water purposes.

G. P. Kirpalani
Manager

GPK/vb

RELIANCE
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RELIANCE
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175 MAY STREET, EDISON, NJ 08837 PH (732) 738-5454 FAX (732) 738-5841
EMAIL: 74201.3501@COMPUSERVE.COM

LABORATORY CHRONICLE

Customer Name Arco Chemical Co.
Date Received: 2/4/99
Date Sampled: 2/3/99
Sample ID: As per chain of custody

Organic Extraction:

1 Acids _____
2 Base / Neutrals _____
3 Pesticides/PCB's _____
4 TPHC _____

Analysis:

1 Volatiles 2/4/99
2 Acids _____
3 Base/Neutrals _____
4 Pesticides/PCB's _____
5 TPHC _____

Inorganics:

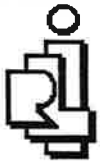
1 Metals _____
2 Cyanides _____
3 Phenols _____

Other Analysis:

_____
_____

Supervisor
Review & Approval _____

RELIANCE
LABORATORIES INC.



3090 WOODBRIDGE AVENUE, EDISON NJ 08837 PH (908) 738-5454 FAX (908) 738-5841

NON-CONFORMANCE SUMMARY

Reliance Labs received 9 water sample for BTEXS (EPA 524.2) from Arco Chemical on 4 February 1999. Samples consisted of 9 vials.

Matrix spike recovery analysis was performed on samples and results are attached.

All analyses were performed within the required holding time.

STANDARD OPERATING PROCEDURE
METHOD 524.2

1. Scope

This is the general method for the procedure used to identify purgeable volatile organics in portable water. The sample is purged with ultra high purity helium and concentrated into a trap. The volatiles are then thermally desorbed onto a megabore column and identified using a mass spectrometer detector.

2. Equipment and Apparatus

A. Sample containers- 40ml screw caps amber vials.

B. Purge and Trap System.
   1. 25cm VOCARB 3000 trap.

C. Glassware
   1. 20 ml fritted purging vessels.
   2. 25 ml teflon sealed syringe with lever lock assembly.
   3. 10 µL syringes.

D. Gas Chromographic / Mass Spectrometer.
   1. Column type J&W
      75 m, 0.53 mm ID, DB624 3 microns

E. Apparatus Conditions
   1. Tekmar (purge and trap)

a.	Purge time	:	2 min.
b.	Desorb time and temp.	:	250° for 2 min.
c.	Bake time and temp.	:	260° for 12 min.
d.	Flow rate	:	15 cc/min.

   2. GC Conditions

a.	Column flow	15 cc/min.
b.	Initial temp.	35° C
c.	Ramping Rate	6° C/min.
d.	Final temp.	200° C
e.	Run time	47.25 min.
f.	Initial time	6 min.

3. Stock Standards

A. Internal Standard
   1. Flourobenzene

B. Surrogates
   1. 1,2-dichlorobenzene-d4
   2. 4-bromoflurobenzene

C. Prepare standard solutions for all target compounds and surrogates at 20 ppm.

D. Prepare internal standard at 20 ppm in methanol.
   1. Prepare all standards and store in teflon sealed 1 ml vials.

4. Run Sequence

A. Tune Instrument

1. Inject 1µL of 25 ppm BFB into GC.
   a. Tune must pass against criteria.
   b. Tune must be run before any samples, blank or calibrations can be run.
   c. From time to tune 12 hours are available to run all QC data and samples.

B. Five Point Calibration Curve

1. Purge five (5) concentrations of standard solutions containing all the target analysis at 1 ppb, 2 ppb, 5 ppb, 10 ppb, and 20 ppb.
2. The above standard must be run within 12 hours of injecting the BFB tune.
3. Created a calibration curve with the above standard runs.
   a. If the 30% RSD deviation is exceeded the standards must be run again (still within 12 hours)
4. Create an identification file from this calibration curve for automated quantification.

C. If time remains in the 12-hour run period go to step F.

D. If the 12-hour period has expired, a new tune must be injected and a new sequence must be started.

E. Once an initial calibration curve is established a continuing calibrations check may be run. A continuing calibration check is required every time the mass spectrometer is tuned.

1. 2 ppb concentration of all target compounds is purged and quanted against current ID file.
2. Check the response factors of this run against the average RF of the calibration file. The RF of the continuing calibration must be within ± 50% D (difference) of the 5 point for all compounds.
3. The area counts of internal standard and surrogates must not be decreased by >30% from the most recent continuing calibration standard nor decrease by >50% from the initial calibration standard.

F. Daily Blank

1. Purge 20 ml of laboratory reagent water (nanopure) with 5 ppb internal standard and 5 ppb each surrogate.
2. Run this blank and quant against current ID file.
3. If blank does not meet criteria, it must be rerun before analyzing any samples.

G. Samples

1. Fill 25 ml syringe until it overflows with sample. Then adjust the volume to 20 ml exactly.
2. Inject 5 µl each 25 ppm internal standard and surrogate standard solution into each sample.
3. Run and quant against the current 5 point calibration curves.
4. Any sample with target compound over 50 ppb must be rerun at the appropriate dilution.
5. Any sample not injected in 12-hour period must be rerun.

H. Quality Control Sample (QCS)

1. Analyze a QCS from an external source at least quarterly.

R E L I A N C E
LABORATORIES INC.

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EMAIL : 74201.3501@COMPUSERVE.COM

LABORATORY ID
NJ DEP NO. 12687
PA DER NO. 68437

CERTIFICATE OF ANALYSIS

Customer: Arco Chemical
Sample: Aqueous Samples
Date Sampled: 3 February 1999
Lab ID: R-6171
Reference: **AHA / Monaca**

19 February 1999

Units: µg/L

Sample ID	Benzene	Toluene	Ethylbenzene	Xylene	Styrene
RC-ER-12-0299	< 0.13	< 0.6	< 0.22	< 0.22	< 0.58
RC-ER-25-0299	< 0.13	< 0.6	< 0.22	< 0.22	< 0.58
RC-EC-64-0299	0.69	< 0.6	< 0.22	0.55	< 0.58
RC-EL-36-0299	0.49	0.82	0.32	1.37	< 0.58
RC-EL-18-0299	0.37	0.78	0.27	1.17	< 0.58
RC-EC-00-0299	0.58	< 0.6	< 0.22	< 0.22	< 0.58
RC-EC-00-0299A	0.64	< 0.6	< 0.22	0.61	< 0.58
RC-EC-34-0299	0.64	0.61	< 0.22	0.75	< 0.58
Field Blank	0.63	< 0.6	< 0.22	< 0.22	< 0.58

G. P. Kirpalani
Manager

Quantitation Report

Data File : c:\hpchem\1\data\v5969.d
Acq On : 4 Feb 99 4:39 pm
Sample : R-6171.1
Misc : Arco - RC-ER-12-0299
Quant Time: Feb 5 9:11 1999

Vial: 10
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.99	96	1967274	5.00	ug/L	0.00
System Monitoring Compounds						%Recovery
43) 4-bromofluorobenzene	26.08	95	701667	4.90	ug/L	98.07%
55) 1,2-dichlorobenzene-d4	31.26	152	446627	4.74	ug/L	94.76%
Target Compounds						Qvalue

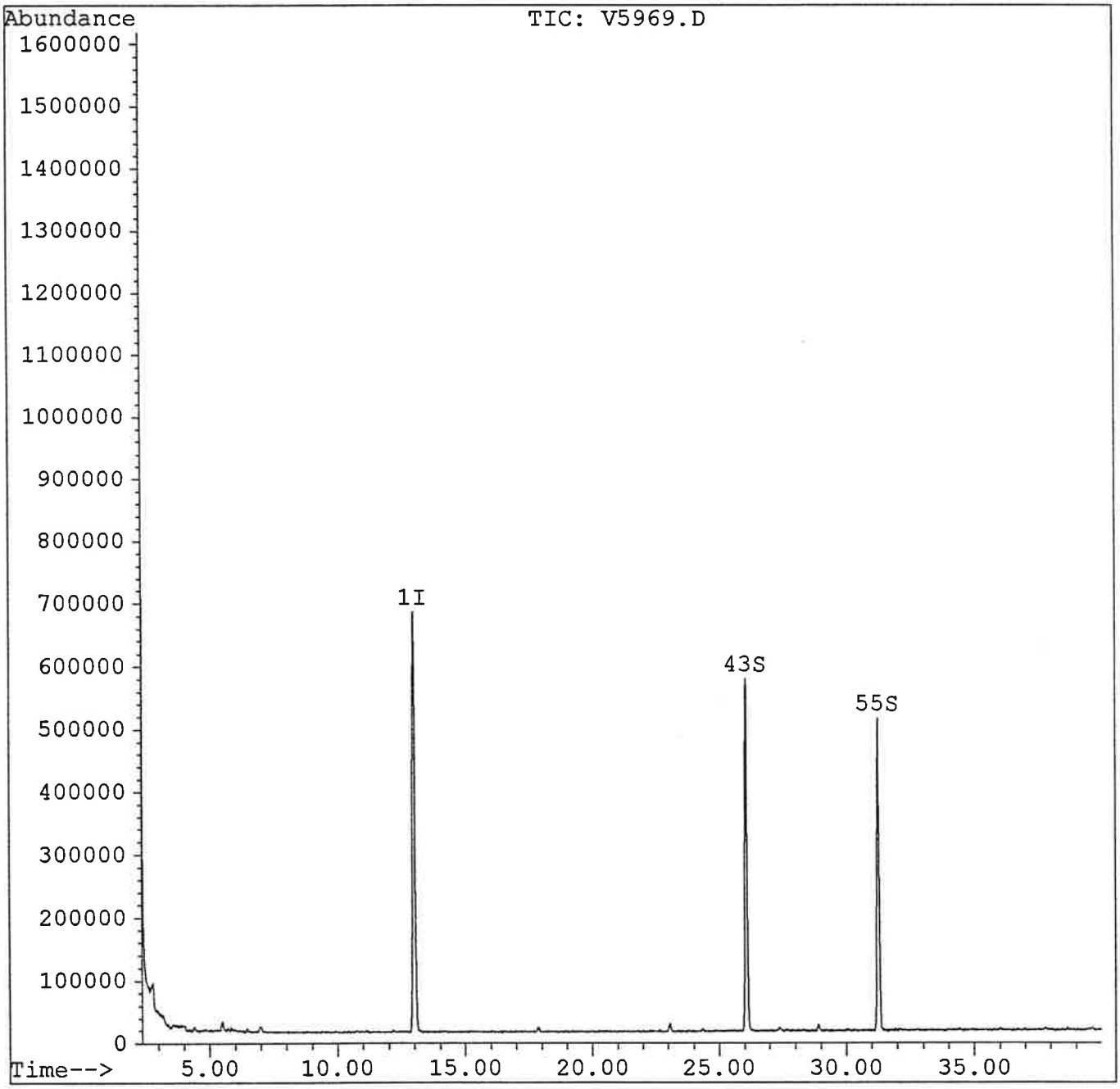
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\v5969.d
Acq On : 4 Feb 99 4:39 pm
Sample : R-6171.1
Misc : Arco - RC-ER-12-0299
Quant Time: Feb 5 9:11 1999

Vial: 10
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data\v5970.d
Acq On : 4 Feb 99 5:24 pm
Sample : R-6171.2
Misc : Arco - RC-ER-25-0299
Quant Time: Feb 5 9:11 1999

Vial: 11
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.99	96	1877487	5.00	ug/L	0.00
System Monitoring Compounds						%Recovery
43) 4-bromofluorobenzene	26.07	95	661048	4.84	ug/L	96.81%
55) 1,2-dichlorobenzene-d4	31.25	152	447619	4.98	ug/L	99.51%
Target Compounds						Qvalue

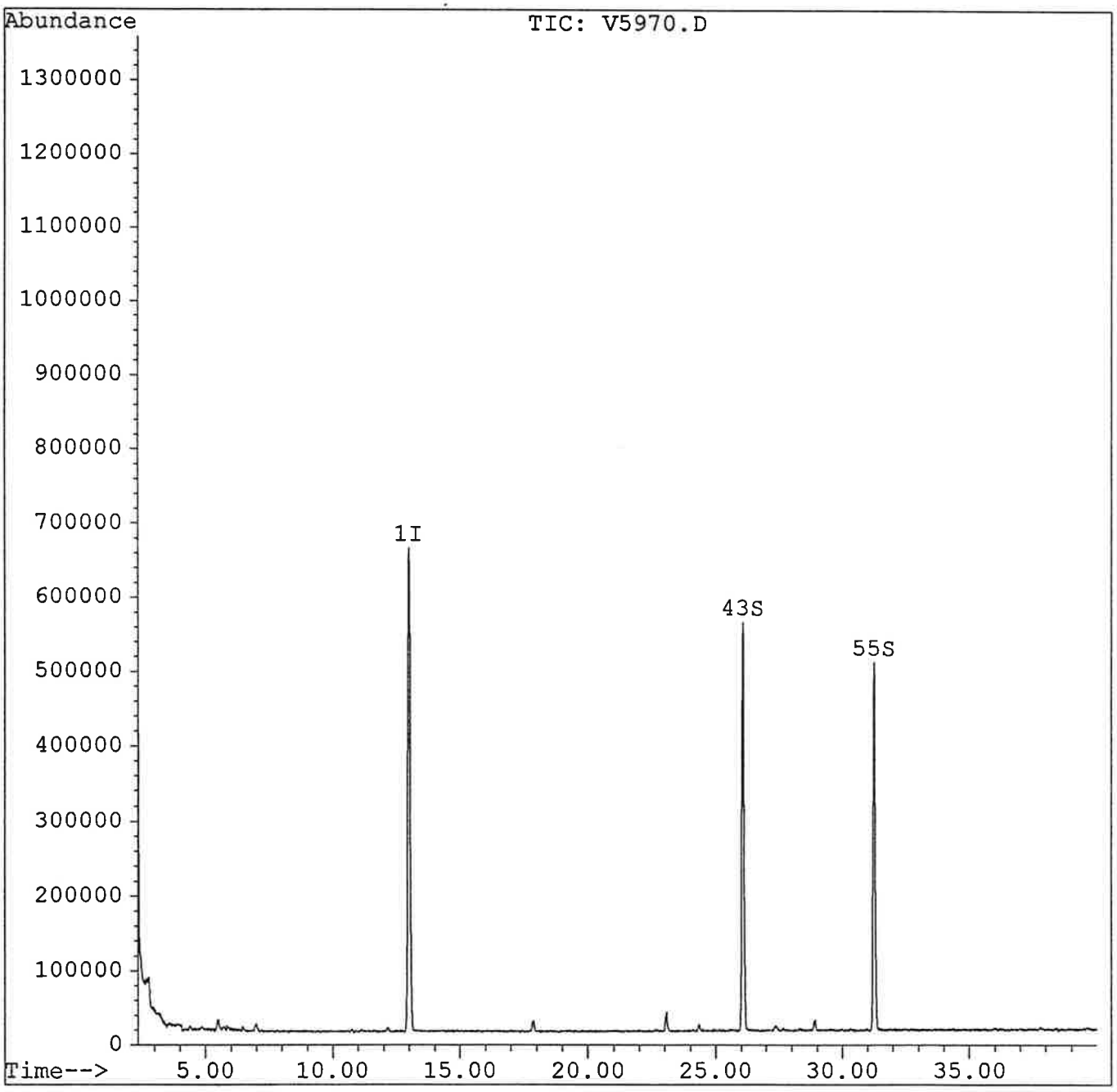
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\v5970.d
Acq On : 4 Feb 99 5:24 pm
Sample : R-6171.2
Misc : Arco - RC-ER-25-0299
Quant Time: Feb 5 9:11 1999

Vial: 11
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration



309

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5971.D
Acq On : 4 Feb 99 6:10 pm
Sample : R-6171.3
Misc : Arco - RC-EE-64-0299
Quant Time: Feb 5 9:25 1999

Vial: 12
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.99	96	1941054	5.00	ug/L	0.00
System Monitoring Compounds						%Recovery
43) 4-bromofluorobenzene	26.06	95	676366	4.79	ug/L	95.81%
55) 1,2-dichlorobenzene-d4	31.25	152	459698	4.94	ug/L	98.85%
Target Compounds						Qvalue
19) Benzene	12.16	78	254867	0.69	ug/L	98
26) Toluene	17.84	91	161641	0.44	ug/L	95
36) m&p-xylenes	23.05	106	71868	0.26	ug/L	94
37) o-xylene	24.34	91	79167	0.29	ug/L	99

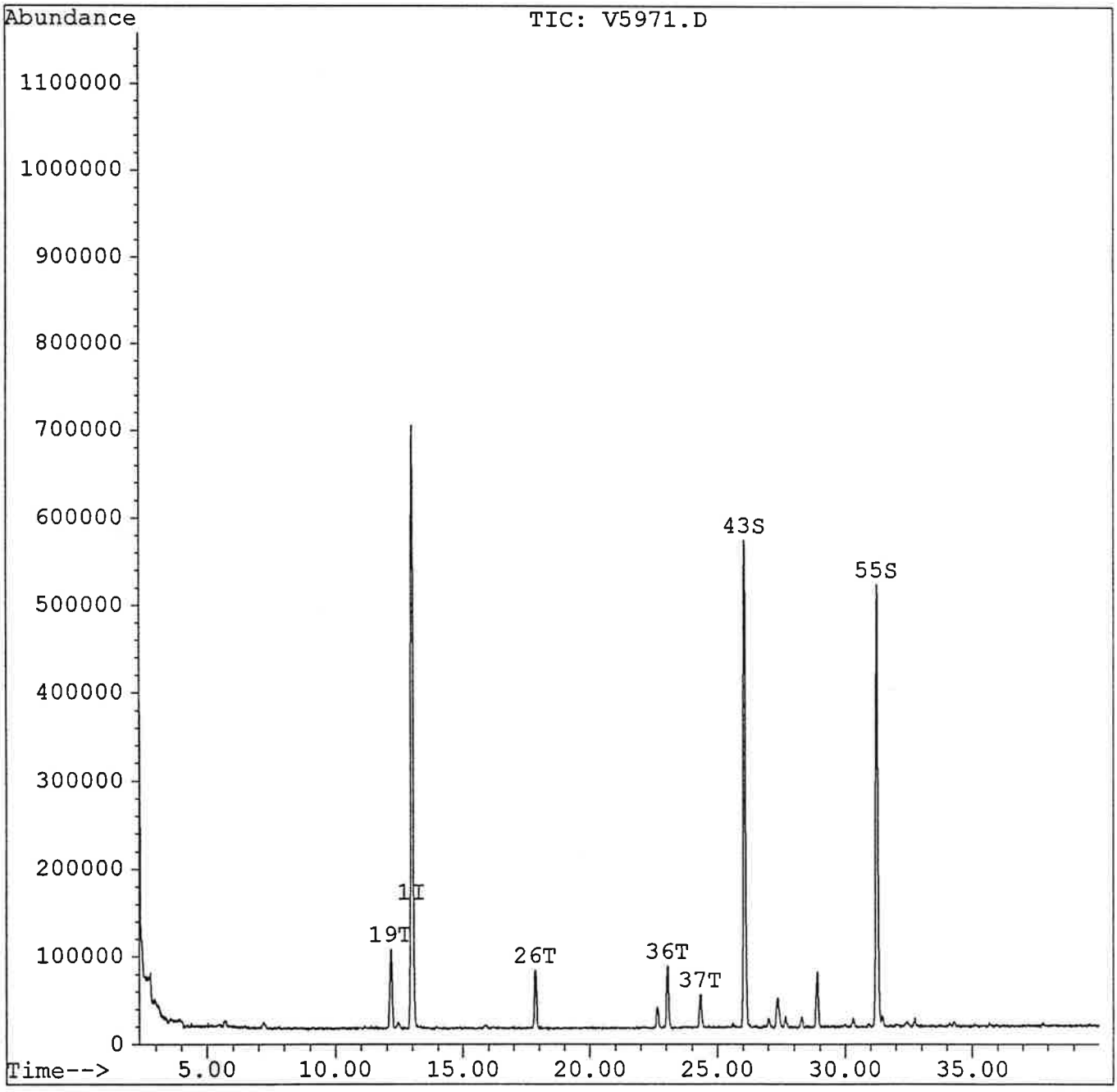
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5971.D
Acq On : 4 Feb 99 6:10 pm
Sample : R-6171.3
Misc : Arco - RC-EE-64-0299
Quant Time: Feb 5 9:25 1999

Vial: 12
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration



011

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5972.D
Acq On : 4 Feb 99 6:57 pm
Sample : R-6171.4
Misc : Arco - RC-EL-36-0299
Quant Time: Feb 5 9:26 1999

Vial: 13
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.98	96	1970259	5.00	ug/L	0.00
System Monitoring Compounds						%Recovery
43) 4-bromofluorobenzene	26.06	95	691063	4.82	ug/L	96.44%
55) 1,2-dichlorobenzene-d4	31.24	152	471666	5.00	ug/L	99.92%
Target Compounds						Qvalue
19) Benzene	12.15	78	183360	0.49	ug/L	96
26) Toluene	17.85	91	303069	0.82	ug/L	99
35) Ethylbenzene	22.66	91	127113	0.32	ug/L	95
36) m&p-xylenes	23.05	106	179066	0.63	ug/L	98
37) o-xylene	24.33	91	207837	0.74	ug/L	96

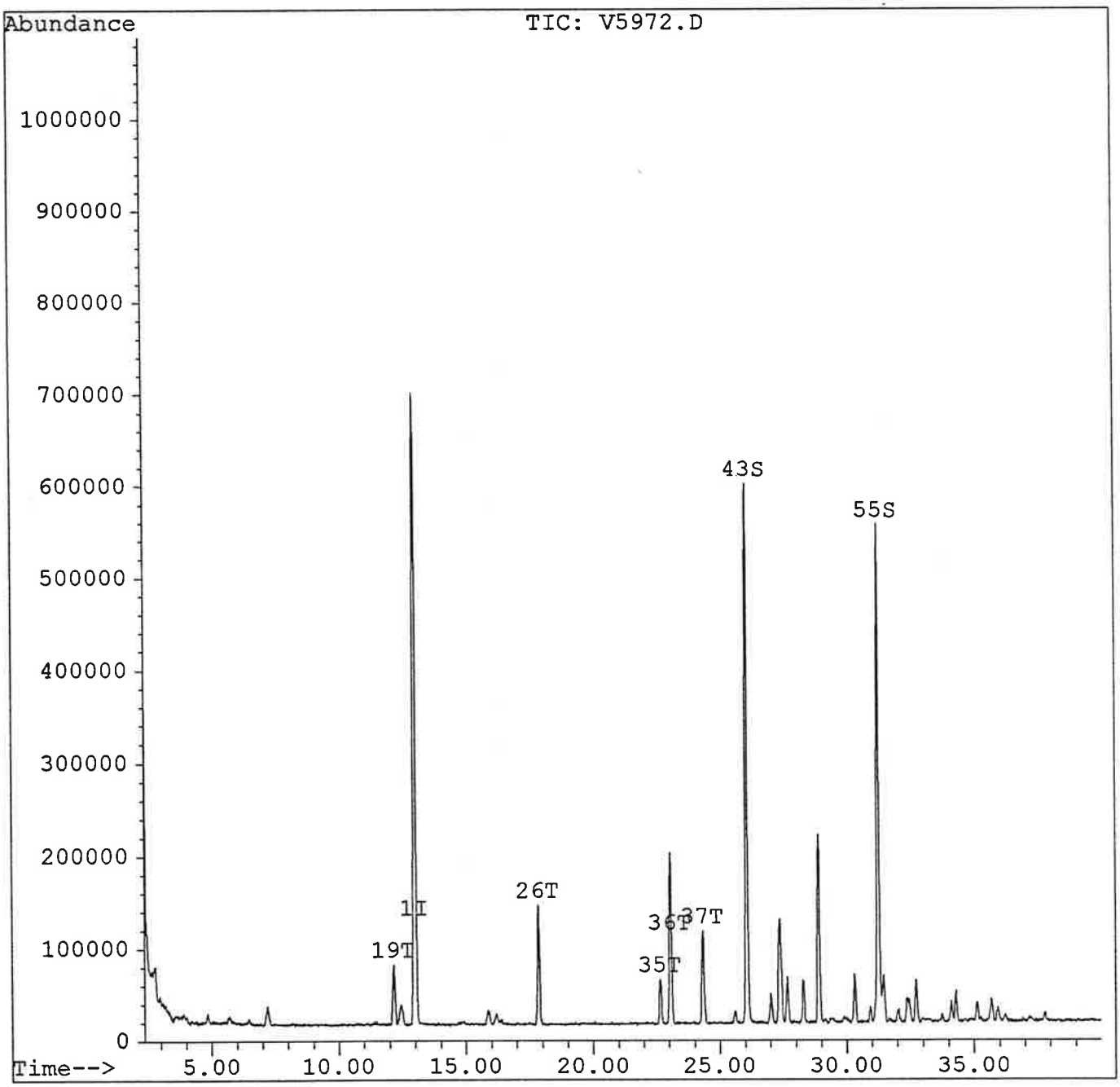
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5972.D
Acq On : 4 Feb 99 6:57 pm
Sample : R-6171.4
Misc : Arco - RC-EL-36-0299
Quant Time: Feb 5 9:26 1999

Vial: 13
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5973.D
Acq On : 4 Feb 99 7:43 pm
Sample : R-6171.5
Misc : Arco - RC-EL-18-0299
Quant Time: Feb 5 9:28 1999

Vial: 14
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.99	96	1909289	5.00	ug/L	0.00
System Monitoring Compounds						%Recovery
43) 4-bromofluorobenzene	26.05	95	669501	4.82	ug/L	96.41%
55) 1,2-dichlorobenzene-d4	31.24	152	454757	4.97	ug/L	99.41%
Target Compounds						Qvalue
19) Benzene	12.16	78	134071	0.37	ug/L	96
26) Toluene	17.84	91	279572	0.78	ug/L	100
35) Ethylbenzene	22.65	91	105827	0.27	ug/L	98
36) m&p-xylenes	23.04	106	153910	0.56	ug/L	88
37) o-xylene	24.32	91	166791	0.61	ug/L	96

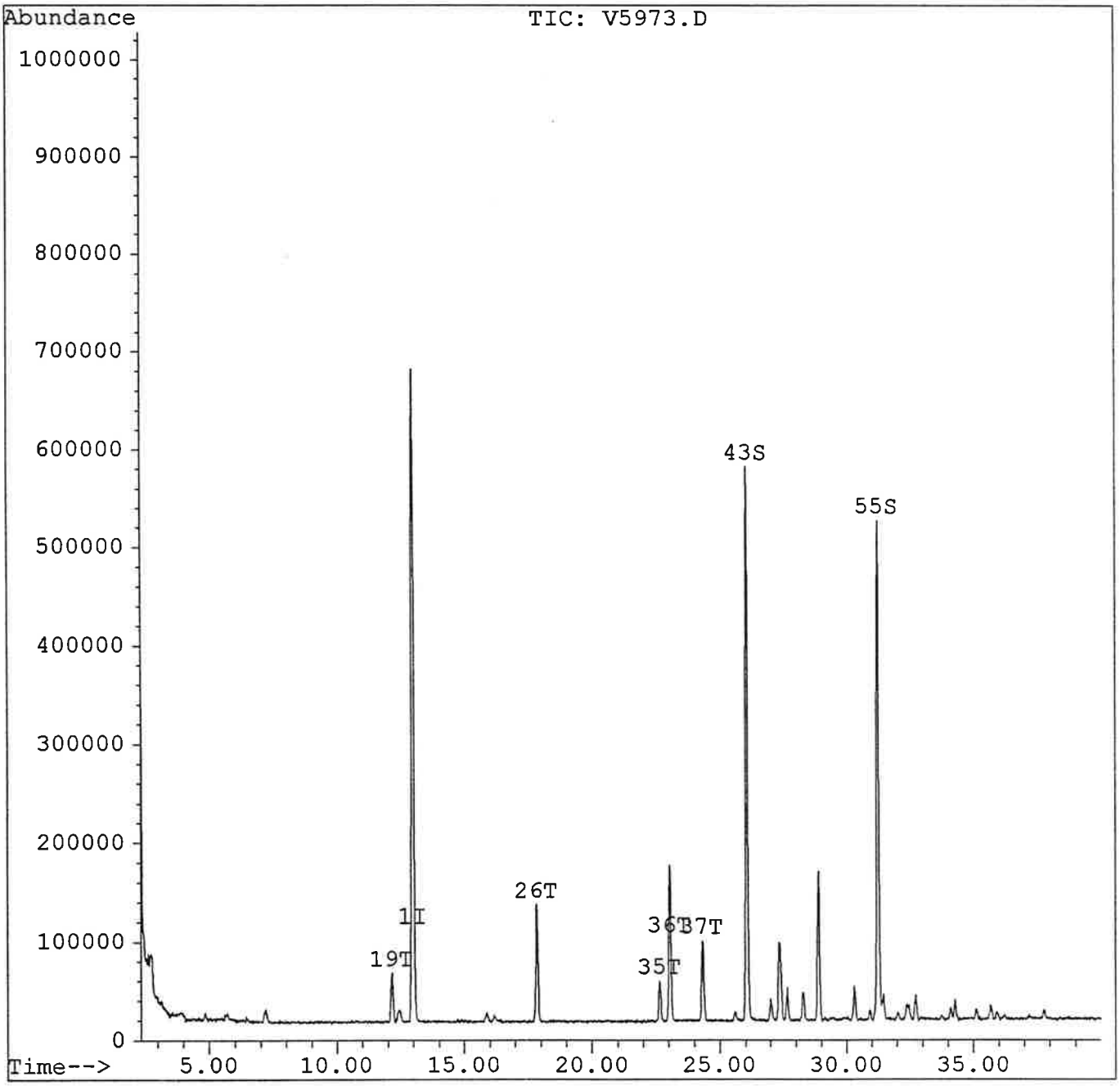
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5973.D
Acq On : 4 Feb 99 7:43 pm
Sample : R-6171.5
Misc : Arco - RC-EL-18-0299
Quant Time: Feb 5 9:28 1999

Vial: 14
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5974.D
Acq On : 4 Feb 99 8:29 pm
Sample : R-6171.6
Misc : Arco - RC-EC-00-0299
Quant Time: Feb 5 9:28 1999

Vial: 15
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.98	96	1928540	5.00	ug/L	0.00
System Monitoring Compounds						%Recovery
43) 4-bromofluorobenzene	26.05	95	676570	4.82	ug/L	96.46%
55) 1,2-dichlorobenzene-d4	31.24	152	468722	5.07	ug/L	101.44%
Target Compounds						Qvalue
19) Benzene	12.16	78	214728	0.58	ug/L	99
26) Toluene	17.84	91	84547	0.23	ug/L	93

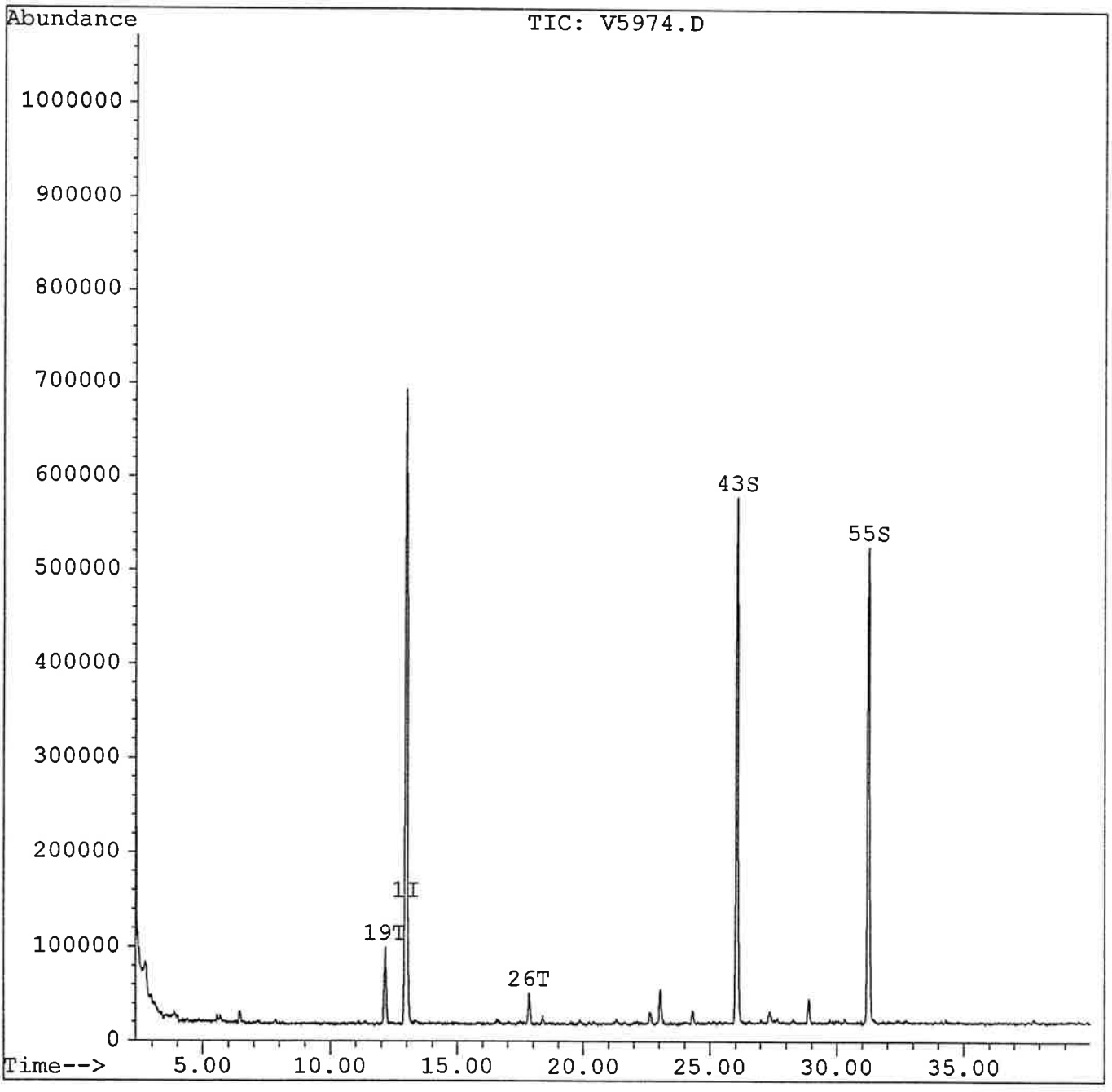
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5974.D
Acq On : 4 Feb 99 8:29 pm
Sample : R-6171.6
Misc : Arco - RC-EC-00-0299
Quant Time: Feb 5 9:28 1999

Vial: 15
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5975.D
Acq On : 4 Feb 99 9:16 pm
Sample : R-6171.7
Misc : Arco - RC-EC-00-0299A
Quant Time: Feb 5 9:16 1999

Vial: 16
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.98	96	1867751	5.00	ug/L	0.00
System Monitoring Compounds						%Recovery
43) 4-bromofluorobenzene	26.06	95	653313	4.81	ug/L	96.17%
55) 1,2-dichlorobenzene-d4	31.23	152	437372	4.89	ug/L	97.74%
Target Compounds						Qvalue
19) Benzene	12.16	78	229422	0.64	ug/L	100
26) Toluene	17.84	91	189861	0.54	ug/L	98
36) m&p-xylenes	23.04	106	80473	0.30	ug/L	92
37) o-xylene	24.33	91	81703	0.31	ug/L	99

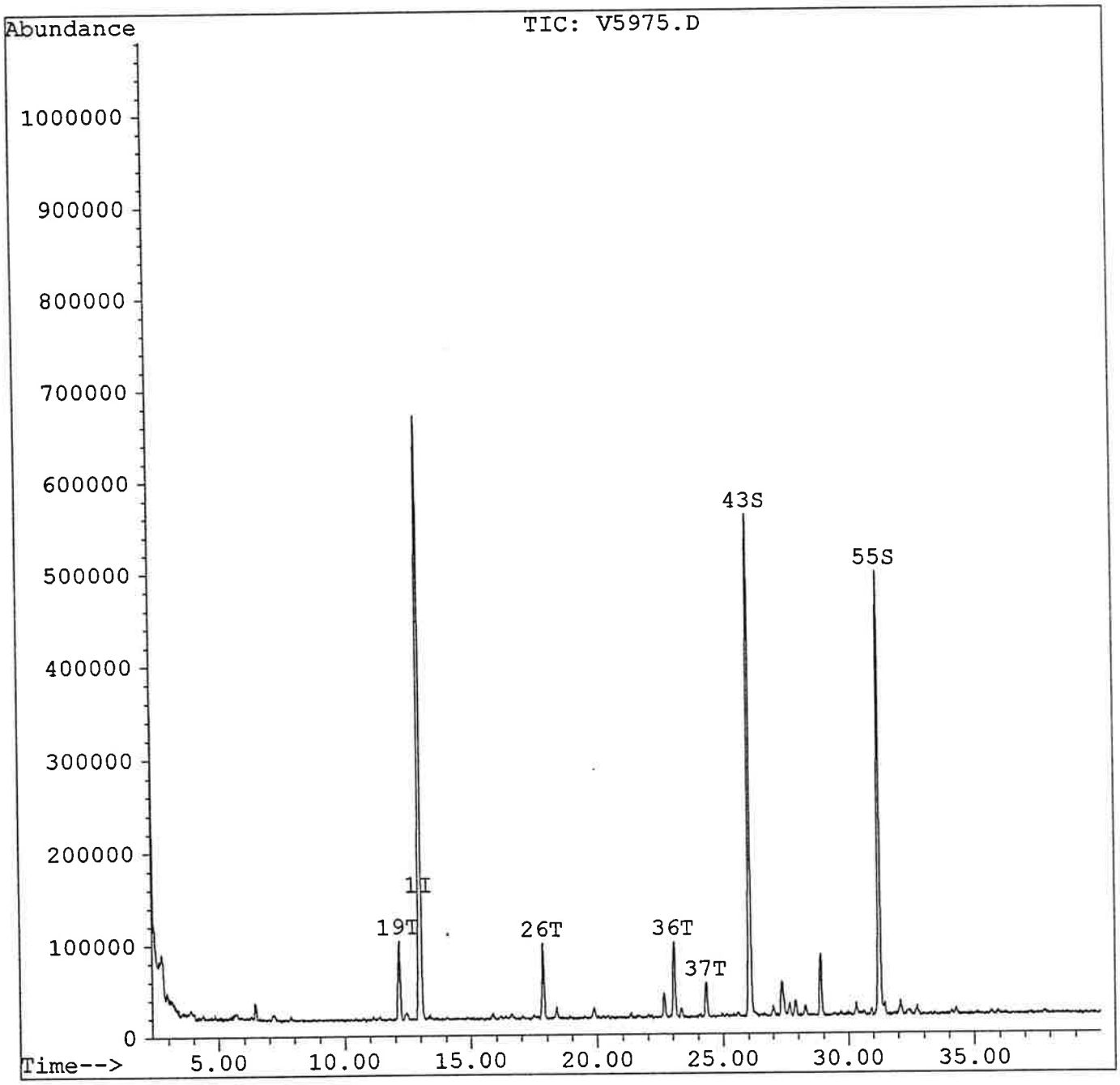
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5975.D
Acq On : 4 Feb 99 9:16 pm
Sample : R-6171.7
Misc : Arco - RC-EC-00-0299A
Quant Time: Feb 5 9:16 1999

Vial: 16
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5976.D
Acq On : 4 Feb 99 10:02 pm
Sample : R-6171.8
Misc : Arco - RC-EC-34-0299
Quant Time: Feb 5 9:15 1999

Vial: 1
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	12.98	96	1937935	5.00 ug/L	0.00
System Monitoring Compounds					%Recovery
43) 4-bromofluorobenzene	26.05	95	676154	4.80 ug/L	95.93%
55) 1,2-dichlorobenzene-d4	31.24	152	462193	4.98 ug/L	99.54%
Target Compounds					Qvalue
19) Benzene	12.15	78	236137	0.64 ug/L	98
26) Toluene	17.85	91	220589	0.61 ug/L	94
35) Ethylbenzene	22.65	91	82917	0.21 ug/L	92
36) m&p-xylenes	23.04	106	100977	0.36 ug/L	95
37) o-xylene	24.32	91	106963	0.39 ug/L	97

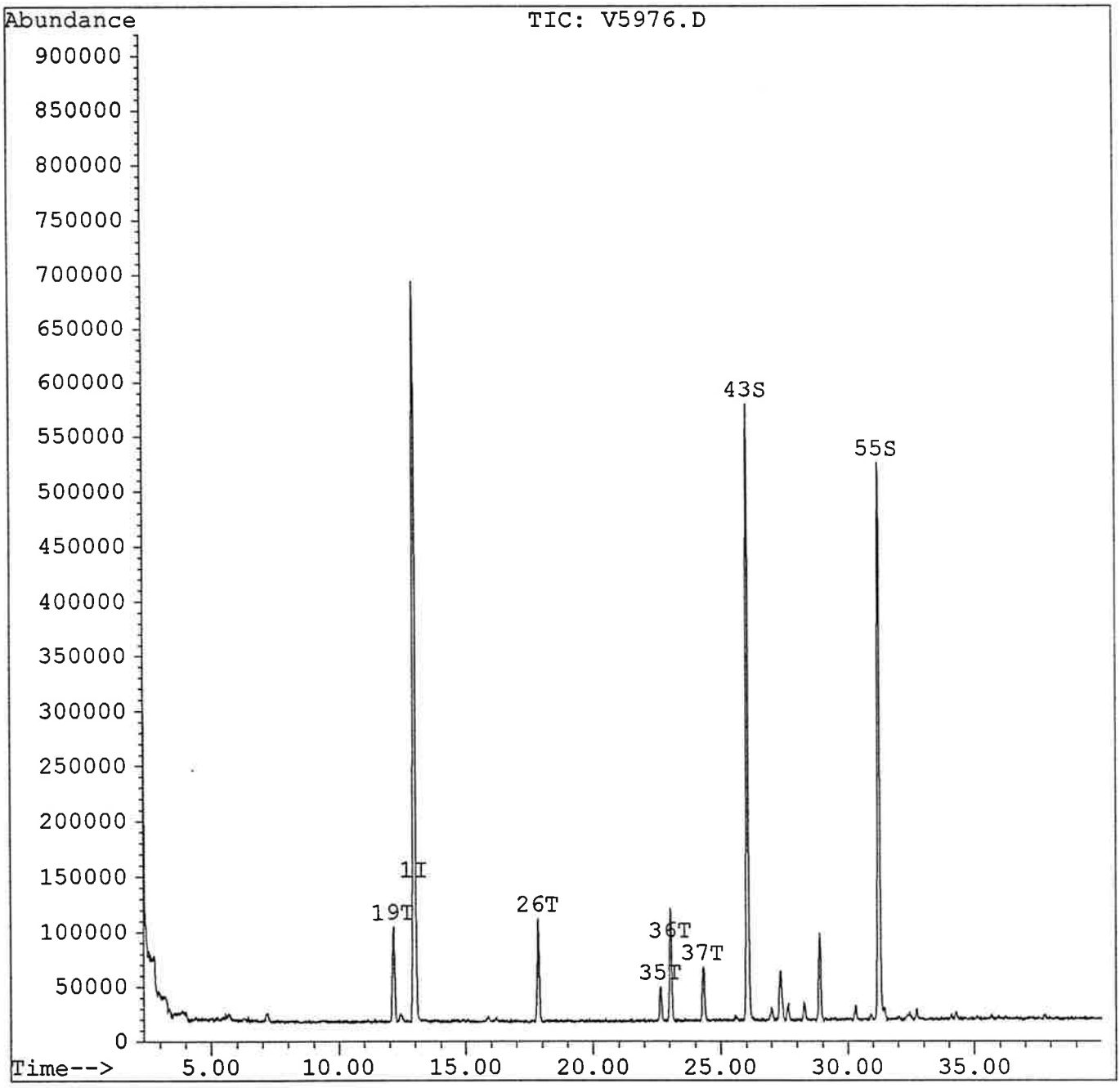
(#) = qualifier out of range (m) = manual integration
V5976.D RUN524.M Fri Feb 05 09:30:38 1999

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5976.D
Acq On : 4 Feb 99 10:02 pm
Sample : R-6171.8
Misc : Arco - RC-EC-34-0299
Quant Time: Feb 5 9:15 1999

Vial: 1
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5977.D
Acq On : 4 Feb 99 10:48 pm
Sample : R-6171.9
Misc : Arco - Field Blank
Quant Time: Feb 5 9:31 1999

Vial: 2
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	12.98	96	1820261	5.00	ug/L	0.00
System Monitoring Compounds						%Recovery
43) 4-bromofluorobenzene	26.05	95	647171	4.89	ug/L	97.76%
55) 1,2-dichlorobenzene-d4	31.23	152	440825	5.05	ug/L	101.08%
Target Compounds						Qvalue
26) Toluene	17.84	91	215081	0.63	ug/L	93
36) m&p-xylenes	23.03	106	52842	0.20	ug/L	87

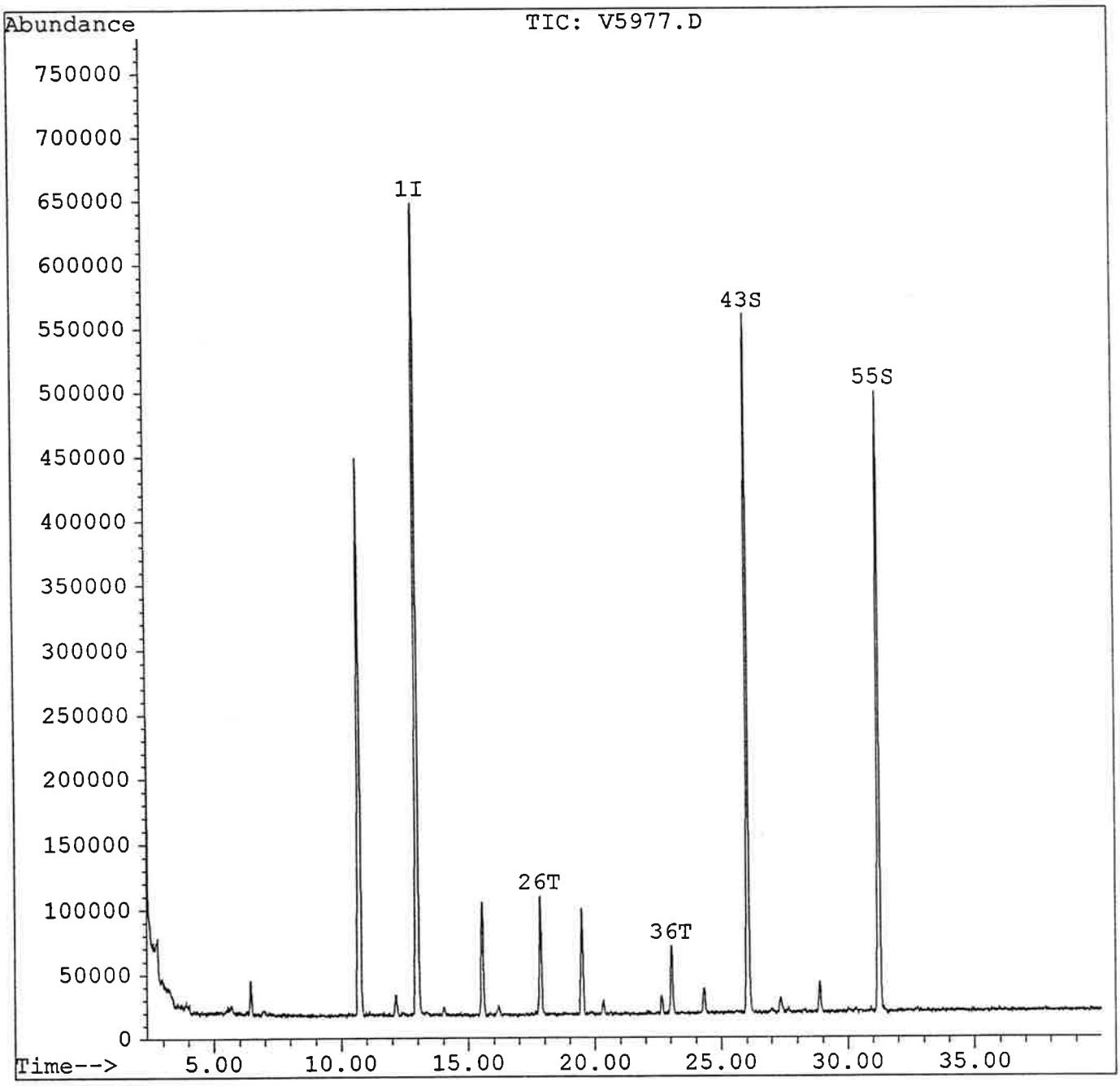
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5977.D
Acq On : 4 Feb 99 10:48 pm
Sample : R-6171.9
Misc : Arco - Field Blank
Quant Time: Feb 5 9:31 1999

Vial: 2
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration



RELIANCE LABORATORIES, INC.

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Customer : Arco

	SAMPLE NO.	SMC1 #	SMC2 #	#	OTHER #	TOT OUT
01	VBLK01	90	86			
02	R-6171.1	98	95			
03	R-6171.2	97	100			
04	R-6171.3	96	99			
05	R-6171.4	96	100			
06	R-6171.5	96	99			
07	R-6171.6	96	101			
08	R-6171.7	96	98			
09	R-6171.8	96	100			
10	R-6171.9	98	101			
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

		QC LIMITS
SMC1	= 4-Bromofluorobenzene	(75-115)
SMC2	= 1,2-dichlorobenzene-d4	(75-115)

\# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM II VOA-1

RELIANCE LABORATORIES, INC.

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Matrix Spike - Sample No.: , R-6171.1

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Benzene	3.00	0.00	3.15	105	(80-120)
Toluene	3.00	0.00	2.97	99	(80-120)
Ethylbenzene	3.00	0.00	3.06	102	(80-120)
m&p-xylenes	3.00	0.00	3.08	103	(80-120)
o-xylenes	3.00	0.00	2.98	99	(80-120)
Styrene	3.00	0.00	3.11	104	(80-120)

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzene	3.00	3.06	102	3	20	(80-120)
Toluene	3.00	3.04	101	2	20	(80-120)
Ethylbenzene	3.00	3.14	105	3	20	(80-120)
m&p-xylenes	3.00	3.14	105	2	20	(80-120)
o-xylenes	3.00	3.06	102	3	20	(80-120)
Styrene	3.00	3.19	106	3	20	(80-120)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: _____

_____

RELIANCE LABORATORIES, INC.

VOLATILE METHOD BLANK SUMMARY

VBLK0

Customer : Arco

Lab File ID V5968.D

Lab Sample ID: BLANK

Date Analyzed: 2/4/99

Time Analyzed: 1552

GC Column: DB-624 ID: 0.53 (mm)

Instrument ID: HP5971

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	R-6171.1	ER-12	V5969.D	1639
02	R-6171.2	ER-25	V5970.D	1724
03	R-6171.3	EC-64	V5971.D	1810
04	R-6171.4	EL-36	V5972.D	1857
05	R-6171.5	EL-18	V5973.D	1943
06	R-6171.6	EC-00	V5974.D	2029
07	R-6171.7	EC-00A	V5975.D	2116
08	R-6171.8	EC-34	V5976.D	2202
09	R-6171.9	FB	V5977.D	2248
10				
11				
12				
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21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM IV VOA

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5968.D
Acq On : 4 Feb 99 3:52 pm
Sample : blank
Misc : blank
Quant Time: Feb 5 9:19 1999

Vial: 9
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	13.00	96	1972619	5.00	ug/L	0.01
System Monitoring Compounds						%Recovery
43) 4-bromofluorobenzene	26.06	95	644818	4.49	ug/L	89.88%
55) 1,2-dichlorobenzene-d4	31.26	152	404960	4.28	ug/L	85.68%
Target Compounds						Qvalue

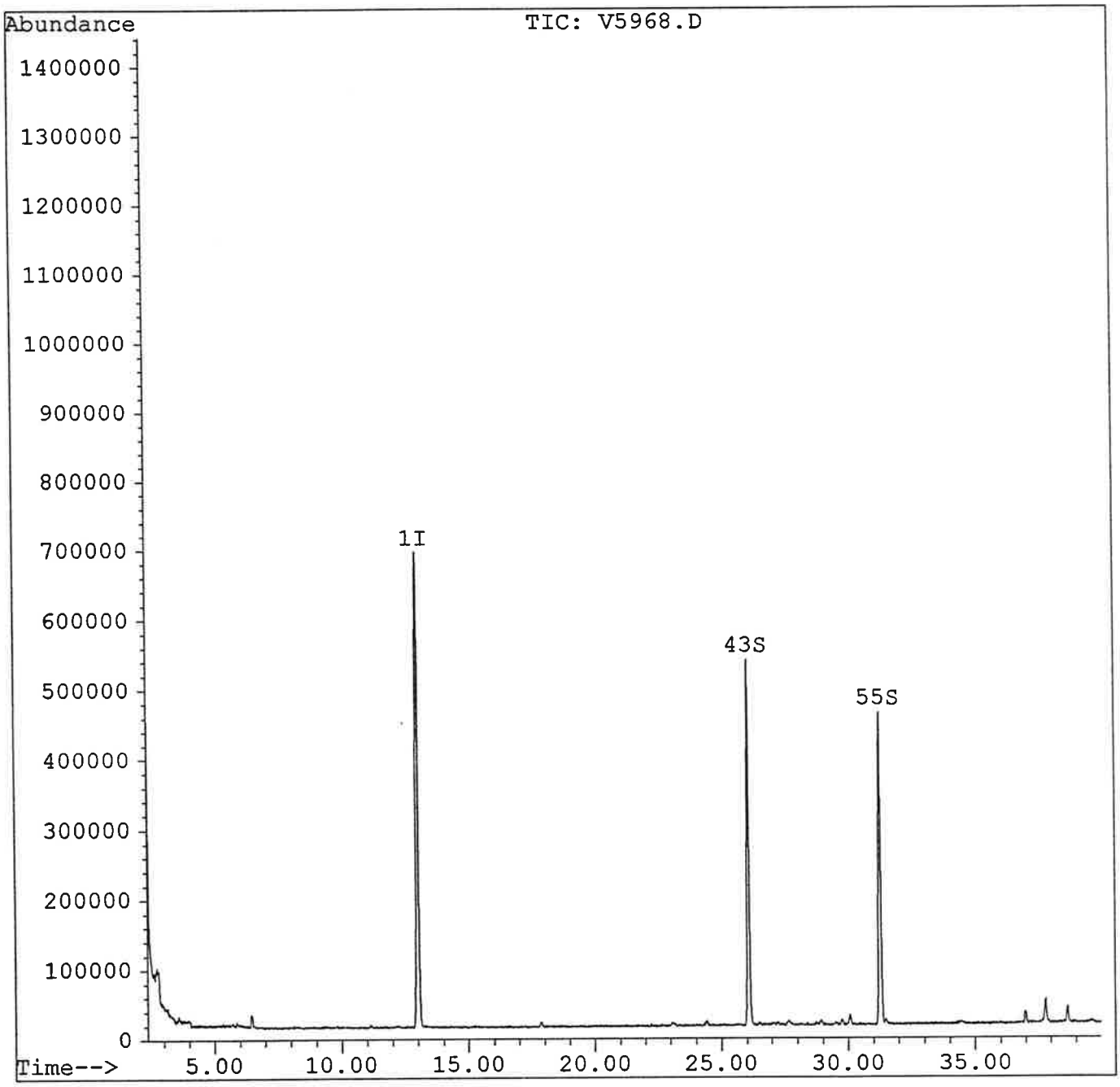
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V5968.D
Acq On : 4 Feb 99 3:52 pm
Sample : blank
Misc : blank
Quant Time: Feb 5 9:19 1999

Vial: 9
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\RUN524.M
Title : 524.2 Purgable Organics
Last Update : Thu Feb 04 16:27:27 1999
Response via : Multiple Level Calibration



RELIANCE LABORATORIES, INC.

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Customer : Arco

Lab File ID: V5964.D

BFB Injection Date: 2/4/99

Instrument ID: HP5971A

BFB Injection Time: 1134

GC Column: DB-624 ID: 0.53 (mm)

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	19.5
75	30.0 - 66.0% of mass 95	42.2
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.2
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	86.6
175	4.0 - 9.0% of mass 174	6.4 (7.4)1
176	93.0 - 101.0% of mass 174	84.8 (97.9)1
177	5.0 - 9.0% of mass 176	5.5 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

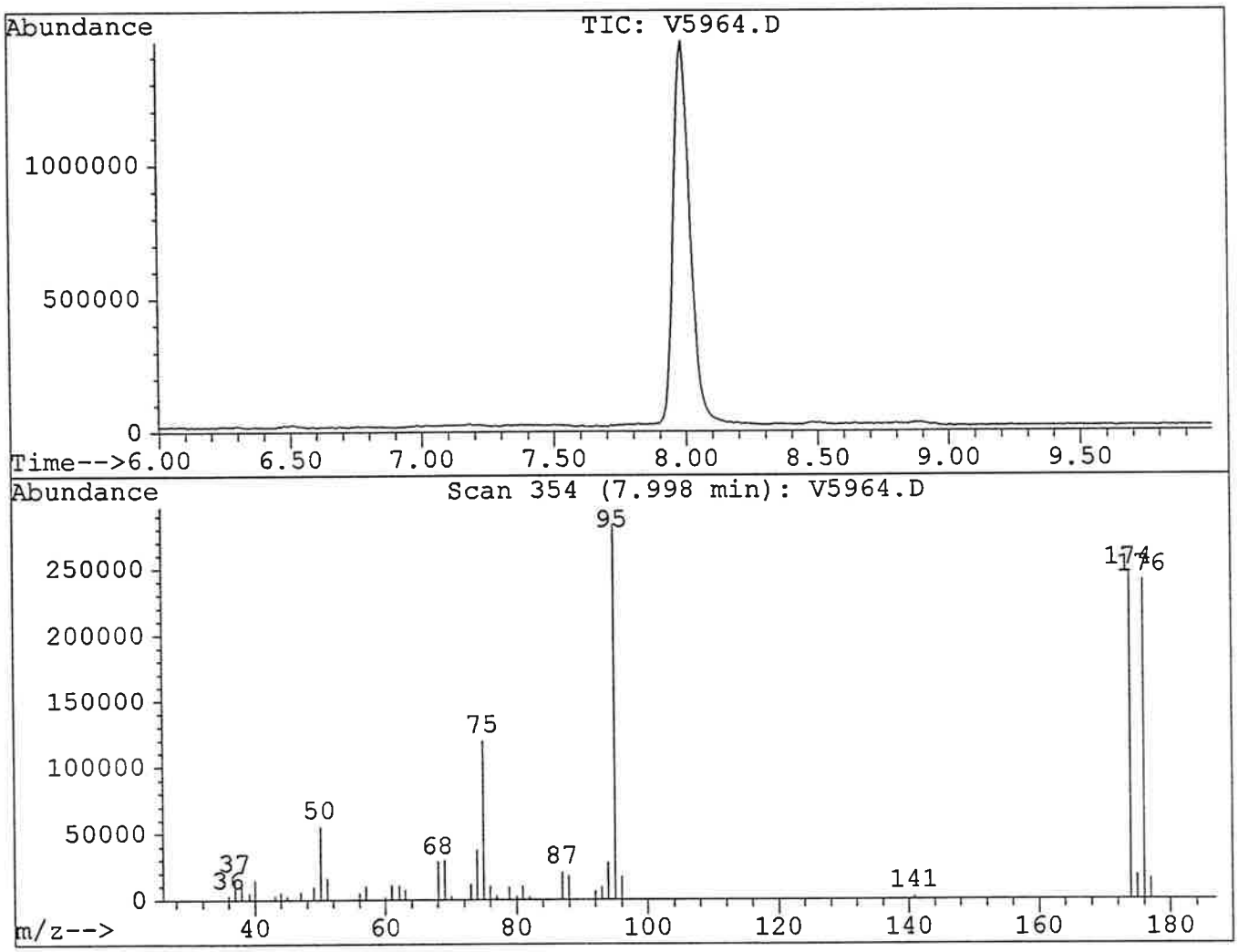
	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD010	ICC001	V5965.D	2/4/99	1217
02	VSTD020	ICC002	V5966.D	2/4/99	1304
03	VSTD050	ICC005	V5967.D	2/4/99	1505
04	VBLK01	BLANK	V5968.D	2/4/99	1552
05	R-6171.1	ER-12	V5969.D	2/4/99	1639
06	R-6171.2	ER-25	V5970.D	2/4/99	1724
07	R-6171.3	EC-64	V5971.D	2/4/99	1810
08	R-6171.4	EL-36	V5972.D	2/4/99	1857
09	R-6171.5	EL-18	V5973.D	2/4/99	1943
10	R-6171.6	EC-00	V5974.D	2/4/99	2029
11	R-6171.7	EC-00A	V5975.D	2/4/99	2116
12	R-6171.8	EC-34	V5976.D	2/4/99	2202
13	R-6171.9	FB	V5977.D	2/4/99	2248
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

Data File : C:\HPCHEM\1\DATA\V5964.D
Acq On : 4 Feb 99 11:34 am
Sample : bfb
Misc : bfb

Vial: 1
Operator: vb
Inst : 5971 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\ENVDEF.M
Title :



Peak Apex is scan: 354

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.5	55304	PASS
75	95	30	60	42.2	119584	PASS
95	95	100	100	100.0	283136	PASS
96	95	5	9	6.2	17432	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	86.6	245248	PASS
175	174	5	9	7.4	18120	PASS
176	174	95	101	97.9	240000	PASS
177	176	5	9	6.4	15454	PASS

V5964.D ENVDEF.M Thu Feb 18 10:26:33 1999

RELIANCE LABORATORIES, INC.

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Customer Arco

Instrument ID: HP5971A Calibration Date(s): 2/4/99 2/4/99

Calibration Times: 1217 1505

GC Column: DB-624 ID: 0.53 (mm)

Lab File ID: RRF01 = V5965.D RRF02 = V5966.D
RRF05 = V5967.D

COMPOUND	RRF01	RRF02	RRF05			$\overline{RRF}$	% RSD
Benzene	0.986	0.944	0.944			0.958	2.5
Toluene	1.030	0.879	0.902			0.937	8.7
Ethylbenzene	1.070	0.954	1.003			1.009	5.8
m&p-xylenes	0.759	0.687	0.728			0.725	5.0
o-xylene	0.763	0.662	0.705			0.710	7.1
Styrene	0.547	0.480	0.504			0.510	6.7
4-bromofluorobenzene	0.370	0.367	0.354			0.364	2.3
1,2-dichlorobenzene-d4	0.239	0.247	0.232			0.239	3.1

FORM VI VOA

RELIANCE LABORATORIES, INC.

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Customer : Arco

Lab File ID (Standard): V5967.D

Date Analyzed: 2/4/99

Instrument ID: HP5971A

Time Analyzed: 1505

GC Column: DB-624 ID: 0.53 (mm)

		IS1 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	2127714	13.00				
	UPPER LIMIT	4255428	13.50				
	LOWER LIMIT	1063857	12.50				
	SAMPLE NO.						
01	VBLK01	1972619	13.00				
02	R-6171.1	1967274	12.99				
03	R-6171.2	1877487	12.99				
04	R-6171.3	1941054	12.99				
05	R-6171.4	1970259	12.98				
06	R-6171.5	1909289	12.99				
07	R-6171.6	1928540	12.98				
08	R-6171.7	1867751	12.98				
09	R-6171.8	1937935	12.98				
10	R-6171.9	1820261	12.98				
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 = Fluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII VOA

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certifies That

Reliance Laboratories, Inc.
3090 Wood Bridge Avenue
Edison, NJ 08837

having duly met the requirements of the

Regulations Governing Laboratory Certification
And Standards Of Performance N.J.A.C. 7:18 et. seq.

is hereby approved as a

State Certified Water Laboratory

To perform the analyses as indicated on the Annual Certified Parameter List which must accompany this certificate to be valid

12687
PERMANENT CERTIFICATION NUMBER

January 11, 1989
DATE

Christopher J. Daggett
ACTING COMMISSIONER
DEPARTMENT OF ENVIRONMENTAL PROTECTION

This certification is subject to unannounced laboratory inspections as specified by N.J.A.C. 7:18-2.11(d) and agreed to by the Laboratory Manager on filing the application

TO BE CONSPICUOUSLY DISPLAYED AT THE LABORATORY WITH THE ANNUAL CERTIFIED PARAMETER LIST.

CHAIN OF CUSTODY

CUSTOMER: ARCO / BEGEER
ADDRESS: Newtown Square, PA
Invoice, Dorothy Green
PHONE (610) 359-7688
FAX (610) 359 7111

Reliance Laboratories, Inc.
175 May Street
Edison, NJ 08837
Tel. 732-738-5454 / Fax. 732-738-5041

DATE: 2/3/99
LAB ID: R-6171
Project ID: Raccoon Creek Samples
Turnaround time: ASAP (standard / rush)
→ David Smallwood
Fax results: (y) / n (610) 565-3583
→ Brian Petroff
724-728-6498
* circle

Sampler Name: Brian Petroff, Michael Dickinson, Bill McGeehan
Preserved: y / NO
Sample Intact: y / n

SAMPLE ID	Date Spld.	Time	# of containers	MATRIX: Water	Soil	Other	ORGANICS: BTEX (602/8020)	TPH (418.1)	VOA (624/8260) +15 *	BNA / BN / + 25 *	Pest / Herb	PCB's	TCLP Organics / PP +40	Other –	METALS: TCLP/ RCRA (8)	Priority Pol.(13)	Total Metals (list below)	Dissolved Metals	Other	OTHERS: pH / CN / Sulfide *	Flsh / % solids *	O & G / TSS / TOX *	BOD / COD / TOC *				Notes:
RC-ER-12-0299	2-3-99	8:32	1	X			X																			
RC-ER-25-0299	2-3-99	8:31	1	X			X																			
RC-EC-64-0299	2-3-99	8:40	1	X			X																			
RC-EL-36-0299	2-3-99	8:53	1	X			X																			
RC-EL-18-0299	2-3-99	8:53	1	X			X																			
RC-EC-00-0299	2-3-99	8:46	1	X			X																			
RC-EC-00-0299 A	2-3-99	8:50	1	X			X																			
RC-EC-34-0299	2-3-99	8:43	1	X			X																			
Field Blank	2-3-99	8:56	1	X			X																			

Instructions: Analyze Samples for BTEXS via 524-2 As in previous quarterly samples
Fax Results to Smallwood and Petroff.

Submitted by: M. Dickinson
Agent of:
Received by:
Agent of: Reliance Labs
Date/Time: 2-4-99 09:30

Submitted by:
Agent of:
Received by:
Agent of:
Date/Time:

Submitted by:
Agent of:
Received by:
Agent of:
Date/Time:

Report to: As per Previous Reports
Deliverables:
- [ ] Standard
- [ ] Reduced
- [ ] Customized